PREFACE Special Issue on Advanced Materials Science in Bulk Nanostructured Metals

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PREFACE

"Bulk Nanostructured Metals" (BNM) can be defined as the bulky polycrystalline metallic materials composed of matrix grains or phases having sizes smaller than 1 μm. Although the minimum average grain sizes in conventional metals and alloys have been around 10 μm, several new techniques including ultrahigh strain plastic deformation (sometimes called severe plastic deformation) have realized BNMs with bulky dimensions since early 1990's. BNMs exhibit unique properties and phenomena that cannot be seen in conventional coarse-grained metallic materials as well as excellent mechanical properties. Consequently energetic studies have been carried out in international community of materials science and engineering in the last decades, and BNMs are expected to be the future structural materials that perform excellent properties in simple chemical compositions. Based on the background, a project named *'Bulk Nanostructured Metals'* has started since 2010 in the scheme of the Grant-in-Aid for Scientific Research on Innovative Area supported by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. The present special issue on Bulk Nanostructured Metals was planned to collect the recent achievements in the field of BNMs, and we could have 24 excellent papers not only from the inside of the above mentioned project but also from the outside including oversea research groups. The papers involve the latest results from experimental studies as well as those from computational materials science. The editors gratefully appreciate the authors, the reviewers, and other relatives, and wish this special issue would contribute to the progress of the science of BNMs.

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